

Note of a New Form

OF

PSEUDO-PARAPLEGIA,

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NOTE OF A NEW FORM OF PSEUDO-PARAPLEGIA.

T. S——, aged 35, a labourer, was admitted to the Royal Infirmary, under my care, on July 23d, 1875, complaining of want of power in both legs and the right arm, from which he has suffered more or less for three years. He states that he has always been healthy, and never met with any accident. At the age of twenty-two he went to New Zealand, and remained there for ten years. From the age of twenty-five to twenty-seven he was occasionally guilty of masturbation. He enjoyed perfect health till he was on his homeward voyage, when he felt a pain as of something tied tightly round his waist. This pain prevented him from standing upright, and he sometimes felt that he dragged his right foot slightly. On reaching home he suffered from a stiffness in his legs, and dizziness, with occasionally a peculiar sensation which he describes as an uneasiness passing up the left leg, then down the right, feeling in the latter part of its course as if boiling water was scalding the limb. He consulted various practitioners, one of whom applied the cautery over the spine, with decided benefit. In January 1873 he married. He did not indulge excessively in sexual intercourse, but he observed that the completion of the act appeared to be delayed. He worked as a labourer, was frequently employed in carrying bags, and was able to continue at his occupation until nine months ago, when the stiffness of his limbs had so increased that he had to give up the attempt. His habits as to food and drink have been favourable; his home has always been comfortable; his work pretty hard, but not excessive. He knows of no nervous disease in his family.

On examination he is found healthy in all except the nervous and muscular systems. He has no abnormal sensation except slight numbness in the fingers of the right hand, especially the thumb and forefinger; sensibility to all kinds of impressions is natural everywhere, except in the right hand, where it seems slightly diminished. His sight has failed a little of late, especi-

ally in the right eye. The pupils are sluggish, of medium size and equal. In the right eye the disc is greyish, its outline ill defined, and the vessels are diminished in calibre. The left eye is similarly but less affected. Hearing, taste, and smell are natural. The muscular sense, as tested by weights, and by standing and walking with the eyes closed, is natural. The natural reflex actions are normally performed, except that micturition is often slow and that the bowels are singularly constipated. On tickling the soles the legs do not jerk, but become rigid from general spasm of the muscles. Voluntary motion is normal in the head, thorax, abdomen, and left arm. The muscles of the right shoulder and upper arm are normal, and he can grasp firmly with the hand, but he says he feels it somewhat weak, and incapable of finer movements, such as buttoning. When he attempts prolonged finer movements, as in writing, his efforts are from the first slow and unsatisfactory, and he is soon obliged to discontinue them, not from any jerking, but from failure of the action of his fingers. The movements of his legs are singularly impaired. He can flex the thigh quite well, but he cannot, when lying in bed either on his face or his back, bend the knees nor the ankles nor the toes. As soon as he attempts to do so the flexor muscles come into play, but at the same moment the antagonistic muscles contract correspondingly, and the limb becomes rigid. He has learned, by moving his pelvis and hip-joints, to obtain some mechanical advantage, and get his flexors to prevail, so that in a roundabout way he obtains flexion; but this is both slow and unsatisfactory. As soon as he ceases to aim at flexion all the muscles relax. When he stands he plants his feet somewhat apart, but is quite steady; and closing his eyes makes no difference. His legs are quite rigid, all the muscles being contracted, and the right foot slightly inverted. When he tries to walk the legs continue rigid; there is no jerking; throwing himself over on the supporting leg, he brings the foot round with a swing, scarcely clearing the ground, and he moves it slowly; the moving leg looks as if it were powerful, but held down and back by a heavy weight. His legs are easily fatigued, and he likes to help himself forward by grasping objects with his hands. He has, owing to the rigidity of his limbs when he attempts to move, the greatest difficulty in going up or down stairs. He manages to sit down by making use of the weight of his body, throwing the centre of gravity behind the line of his legs, and he is able to rise without much difficulty. Getting into bed is a difficult process on account of the rigidity of the limbs. He throws himself diagonally into bed, his pelvis resting on the edge, and then he swings his legs round into the bed. The vaso-motor and nutritive functions are normal, as are also the cerebral and mental. The cranium and spine are well formed. Percussion

over the lumbar region elicits complaint of some degree of tenderness. The hot sponge elicits nothing peculiar. The bones and joints are normal. The muscles are in all parts well nourished. In both legs, also apparently in the right hand, voluntary effort at movement, or peripheral irritation induces spasmodic contraction of all the muscles, so that the limb becomes rigid, as above described. There is no tendency to cramp. After prolonged exertion jerking of the muscles is noticed, but it soon passes off. There are no fibrillary twitchings. Electro-sensibility and electro-contractility are normal.

The peculiar features of this case are, the almost perfect soundness of the sensory functions, and the undue excitability of the motor structures, whereby in the affected regions general contraction is induced, either by attempts at voluntary movement, or by peripheral irritation.

These features do not correspond to anything which is described in the works on diseases of the nervous system to which I have access. It is sufficiently clear that, although the patient is virtually paraplegic, he is not really so, seeing that the power of muscular contraction is impaired in no part of the lower limbs. It is therefore among the pseudo-paraplegias that we must look for analogous cases. In M. Jaccoud's classical work, "*Les Paraplegies et l'Ataxie du Mouvement*," there are described five forms of pseudo-paraplegia, viz. :—

1. A result of general asthenia, which is essentially characterised by the debility being as marked in the arms as in the legs, and by all normal movements being performed, although feebly.

2. A result of partial paralysis—that is, of paralysis of individual muscles or groups of muscles.

3. A result of exaggerated spinal excitability. In this form walking is embarrassed or rendered impossible, because contact of the sole of the foot with the ground induces more or less violent reflex movements, it may be either in the extensors or the flexors. This, of course, induces singular jerkings, which interfere with progression. When fully developed it cannot be confounded with paraplegia, because the limb is agitated by movements, sometimes painful, each time that the foot touches the ground; but when it is present in a less degree error is possible, walking being simply rendered difficult or irregular by the sudden contraction of a group of muscles which interferes with the series of movements necessary for normal progression. If one watches closely, however, the nature and cause of the interference with walking are evident. If the mode of walking does not clear up the case, directing the patient to move in bed infallibly does so; for the movements of the leg are perfectly normal so long as the foot is not touching the ground. This variety was described by M. Goupil as a form of hysterical

paralegia. The embarrassment of movement is solely connected with reflex irritation; voluntary motion is in itself intact. The embarrassment is also not merely due to plantar hyperæsthesia. It is true that it exists in some cases, but not in all; and it is generally quite evident that the excitability of the cord itself is at fault, the excito-motor elements having become excessively sensitive.

4. A result of plantar anæsthesia. The gait is hesitating and unsteady.

5. A result of locomotor ataxia, due to sclerosis of the posterior columns of the cord.

It is obvious that our case cannot be referred to any of the first four catagories, and a little consideration should satisfy anyone that it is not referable to the fifth. The great essential features of locomotor ataxia are wanting. The patient can stand and walk almost as well with his eyes shut as open; his walk is slow and stiff, not jerking, and is unaccompanied by the characteristic stroke of the heel on the ground; he is as helpless in bed as out of it; and the sensory functions are unimpaired.

What, then, is the nature of the affection? It certainly is not merely of the functional character which in women we are accustomed to designate by the term hysterical, for it is not attended by any of the ordinary symptoms of that malady, and the early history of the case, supported by the changes in the eye, affords conclusive proof that organic disease of the cord exists.

What columns are affected? Certainly not the posterior; for the sensory functions are normal. Certainly not the grey matter to any considerable extent; for reflex action, electro-contractility, and the nutrition of the muscles are unimpaired. With equal certainty we may say that the antero-lateral columns are affected, as is proved by the abnormal motor excitability. That the peculiar action is of spinal, not of cerebral, origin is proved by its occurrence in answer to irritation of the soles as well as on voluntary effort.

What is the nature of the lesion? The origin and progress of the case, taken with the affection of the optic nerve, forbid as we have seen, the idea of its being merely functional; and yet it may be hoped that the organic lesion does not extend deeply into the substance of the cord. The commencement during a long voyage, the feeling as of a tight cord round the waist, the giddiness, and the uneasy sensation in the limbs, render it highly probable that a degree of myelitis then existed. The gradual progress towards rigidity on exertion renders it likely that a degree of sclerosis has succeeded. Still, as it is three years since the illness commenced, and as there is even now no true paralysis, or scarcely any in the legs, there seems to be

reason to hope that the symptoms may be in great measure due to increased excitability of a functional nature.

What is known as associated movement (*Mitbewegung*) appears to be the condition most closely allied to that which is found in our case. The essential characteristic of this abnormality is that when by voluntary effort one muscle is brought into play, contraction simultaneously occurs in others. Nothnagel speaks of this as a result of irradiation of the voluntary impulse; and remarks that the more intense that impulse is, the wider is the irradiation. It occurs in health when a violent effort is made, but is a prominent feature of certain morbid conditions. Sometimes the intended movement is feebly performed; the associated, vigorously,—so that the result is quite different from that which was aimed at. An arm may be flexed when the patient wishes to extend it, or an effort to thrust out the tongue may result in firm closure of the mouth. The longer the voluntary effort is continued the greater does the irradiation become, so that a patient effected in this way may be able to walk tolerably for a short time, but afterwards be quite unable to proceed. Careful observation of our patient shows that his symptoms are not referable to any of the described types of associated movement, although in some respects and in so far similar.

It is quite possible that the irradiation observed in our case is directly due to sclerosis; and if so we may expect to find a further gradual extension of the disease, with increase and alteration of the symptoms, true paralysis becoming ultimately developed.

Meanwhile it is clear that the object to be kept in view in treatment is the diminution of the excitability of the spinal cord. The application of icebags along the spine appears to be invariably followed by temporary improvement. When they have been applied for some time, the patient bends his legs quite readily; but when he attempts to walk, little difference is noticed. Ergot of rye has failed to do good; conium has also failed; chloral hydrate appeared to prove in some degree beneficial, but latterly has been found to be of little use.

